

## WORKSHOP ON METHODOLOGIES FOR STUDING COLLECTIVE ACTION SUMMMARY

CAPRI Program, International Food Policy Research Institute  
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The System-wide Program on Property Rights and Collective Action (CAPRI) sponsored a workshop on methodologies for studying collective action that gathered more than 40 researchers from CGIAR centers, national research partners, and a number of external experts to present theoretical work as well as case studies. The aim of the workshop held in Nyeri Kenya in February 2002 was to look at different methodologies to study collective action in natural resource management and poverty reduction, examine strengths and weaknesses of different methodologies, investigate possible integration of approaches and provide guidelines for further research.

The research community increasingly recognizes the importance of studying collective action in natural resource management. However researchers encounter several major problems:

- the *conceptualization* of the concept of collective action is not consistent across studies.
- the *operationalization* of the concept: with a few notable exceptions, researchers have not come to create and accept a set of common methodologies to study collective action, which reduces the availability of comparable data and limits possibilities for drawing strong conclusions on variables thought to affect collective action.
- the *nature* of collective action is extremely complex and is influenced by a high number of factors. Often collective action can only be measured indirectly.

Both papers and working groups in this workshop grappled with this complexity, in order to identify promising approaches to study and strengthen this important institution.

The concept of social capital is closely related to collective action, and is often taken as an indicator of capacity for collective action, or hypothesized to be an important determinant. Similarly to the concept of 'collective action', 'social capital' is not easily operationalized and thus it is difficult to find concrete empirical referents. The paper presented by Anirudh Krishna discusses the concept, empirical measures, and investigates the relation between social capital and development performance in Rajasthan, India. The findings indicate that social capital is an important determinant in development performance of villages. However, the utility of social capital is enhanced considerably when it is used strategically, which is to say agency capacity is important and complementary to social capital. While there are different sets of proxys that can

be used to measure social capital, these proxies depend on the cultural and social setting. This means that there is no universal measure for social capital, especially in micro level analysis, which increases the difficulties of undertaking cross-community or cross-country comparisons.

### ***Presentations on Methods and measures***

IFRI (International Forestry Resource and Institutions) has developed protocols for data collection and a common database for institutional studies in forest management (Poteete and Ostrom). Recognizing the importance of a multidisciplinary approach, the program collects biophysical measures, climatic and soil conditions, demographic and economic indicators about forest users, and institutional data. The approach recognizes that there are multiple levels at which collective action takes place and that many factors determine the implication of collective action at one level for collective action at other levels. Moreover collective action can take many forms, as institutional development, mobilization of resources, coordination of activities and information sharing.

Game theory has contributed to the understanding of group behavior and experimental economics uses game settings to explore individual and group strategies. Workshop participants took part in several experimental games to learn firsthand how they operate, and how they relate to cooperative behavior. Some results from experimental methods (Cardenas and Murphy) that simulate unregulated CPR without communication among participants show that the “Tragedy of the Commons” outcome does not necessarily occur. Simulation of a CPR with external regulation and imperfect monitoring indicates that individuals can be worse off when faced with a modestly enforced government-imposed regulation. In many cases the external regulation can “crowd-out” group oriented behavior. Games that allow a weak form of self-governance over the shared local resource (communication between players) result in a high degree of compliance in the absence of any regulation.

Numerous studies indicate that collective action outcomes are at least partly determined by incentive structures. If so, studying the incentive structure of individuals and communities should help shed light on the determinant of collective action. Experimental economics assumes incentives are individually defined. A study on control of trypanosomosis in Uganda (McCarthy et al.) looks at the incentive structure to explain collective action and indicates how community characteristics can lead to different individual incentive structures (which further complicates the analysis of collective action outcomes). Collective action is considered in this case as a function of both social organization and community capacity (or social capital). This study uses factor analysis to construct indices of cooperation/non-cooperation for collective action and integrates them in a quantitative model that tries to separate between direct and indirect effects of external changes affecting collective action.

A study undertaken in Burkina Faso (Celine Dutilly) analyzes cooperation in the management of community rangelands. The paper looks at collective action for stock density control, land allocation between private crops and common pastures, and mobility of herds. First of all the study determines the different stakeholders. The analysis is undertaken at multiple levels: community, sub-group, and household levels. The analytical framework used states that the determinants of cooperative capacity affect the underlying capacity to cooperate which determines NRM management and household welfare. A number of cooperation determinants are identified and these are aggregated in two indexes: one for passive cooperative capacity and one for active cooperative capacity. The relationship of these capacities to stock densities, land allocation and mobility is analyzed. The findings support the analytical framework presented (collective action affects natural resource management) and that collective action has also a redistributive impact.

A study that analyses group performance in Kenya and Tanzania (Place et al.) uses both quantitative and qualitative measures. While it is relatively simple to identify characteristics of community (structural attributes) and enactment of rules (functional attributes), measuring performance is more difficult, especially comparing performance across different communities. In this study collective action for 3 types of activities is distinguished: collective action for empowerment and increasing benefits, collective action for reducing risk, and collective action for coping with missing markets. The authors state that essential elements for collective action analysis include the determination of for what task collective action is organized, the study of benefits and cost of collective actions, and the determination of alternative behavior outcomes (private action). Data were collected at individual, group and household levels. One of the major problems related to the use of quantitative analysis was that 50% of group as well as individual variables were not quantifiable (on conceptual grounds, lack of precision in quantity or time periods). The paper tested a number of hypotheses and investigated the effect of structural variables that are 'predetermined' (hence, not endogenous) and which are easily visible by organizations who work with groups on collective action performance. The paper does not investigate in detail how different functional aspects of groups impact performance.

Studies undertaken in community forest management in Nepal, India and Japan and water management for rice production in Côte d'Ivoire, also aimed at measuring the benefit or impact of collective action (Sakurai). The determinants of the collective action variable were estimated using a Probit regression model. Measures used to proxy collective action performance differed depending on the activity for which collective action is undertaken. In general it can be said that monitoring costs, transaction costs, and leadership are important community factors determining the impact of collective action.

A further study (Gebremedhin et al.) investigated collective action in grazing management in Ethiopia. Using descriptive information, and Tobit and

Probit statistical models the study finds that collective action for grazing land management is widespread, and contributes to sustainable use of the resource. In the area under investigation most collective action is locally initiated and is organized at the village level and community experience with local organizations favors collective action. Population conditions, market access and wealth heterogeneity are some of the other collective action determinants that are investigated.

A CIMMYT study (Badstue et al.) explored the social arrangements associated with seed transactions among maize growing small-scale farmers in the Central Valleys of Oaxaca, Mexico. The study used qualitative interviews with key informants in different communities to investigate the incentive for the establishment of social networks with the specific purpose of securing access to seed supply of local landraces. Results suggest that seed flow is a complex process of negotiation and reciprocity, influenced by agro-climatological, socio-economic and cultural factors. In the study areas rather than maintaining a specialised social organization for securing access to seed, people make use of other types of social relations and networks to obtain seeds.

A comparison between qualitative and quantitative methods is undertaken by a study investigating the role of social capital in agro-enterprises in Columbia (Johnson et al.). In the study social capital is hypothesized to serve three main functions: support collective action, facilitate access to information, and reduce transaction costs in contracting through trust-based relationships. Two indexes are constructed for structural component of social capital and for the functional component, and are then compared using cluster analysis. The two approaches seem to agree on which firms use little or no social capital, but disagree strongly on which cases have high levels of social capital. These findings imply that studies that attempt to assess social capital using quantitative indicators may underestimate the importance of collective action.

Three more action-oriented studies investigate how collective action for natural resource management can be fostered in communities.

The impact of a change in policy towards decentralized natural resource management on collective action at the village level is the focus of study under CIFOR's "Local People, Devolution and Adaptive Collaborative Management Programme" (Akwah et al.). Outcomes are assessed in terms of improvement in effectiveness (information sharing, reciprocity and trust, regular and fruitful meetings, free expression of stakeholders, acceptance and participation in enforcement, financial benefits generated from forest management, improvement of the condition of forest resources, among others) and equity indicators. The approach allows evaluation of the government policy itself as well as its effects on collective action in the communities.

A second paper (Pokharel et al.) based on the long experience of Nepal in community forestry projects also depicts the use of Adaptive Collaborative Management as well as Participatory Action Research (PAR) techniques. The study highlights the importance of investigating beyond the community-resource relationship. Outcome and capacity for collective action at the local level is influenced by a number of external institutions and organization: government and non-government organizations, donor agencies, and more. It recognizes that collective action occurs at different levels (intra-group, inter-group, up to the federation level) and that collective action at one level influences collective action at other levels. Methodological integration of social science, natural sciences with action research techniques is key to analyze as well as catalyze collective action in communities.

A study by ICLARM (Sultana et al.) describes a method developed for consensus building and describes the process and compares the outcome in a Vietnamese village in the Mekong delta with the outcomes in a floodplain area in Bangladesh. The methodology developed for building consensus (Participatory Action Plan Development) involves a number of participatory techniques to develop a management plan for a common resource. The method is designed to avoid appropriation by locally powerful entities and to develop a shared framework to understand resource management. Stakeholders involved in the process reported benefits from the PAPD in terms of understanding of issues and knowledge, but also claimed that there were changes in the community in terms of indicators of social capital (trust, cooperation, unity and common good).

### ***Working groups***

In addition to the presentations, all workshop participants elaborated on methodologies for research. The discussions started with identifying priorities for studies that are analyzing different aspects of the collective action concept: **4 types of collective action studies** were identified and discussed:

#### *Studies that analyze the determinants of collective action:*

These studies focus on the process of collective action. CA is influenced by the institutional structure in which the community is embedded (that includes government policies, cultural religious values, social capital, ethnicity, property rights structure etc.), so an institutional analysis of the local structure is essential to be able to identify determinants of collective action. Complexity and inclusiveness are two major issues that should be taken into account. Collective action occurs at different levels and interaction between levels determines collective action outcomes. Economic theory generally looks for causal relationships, and in the case of collective action feedback effects are the norm. Although collective action can be studied at any level of aggregation (individual, group, community, federation, national level) often it is the researcher that defines the unit of analysis and in real life the boundaries of the “group” in which collective action occurs are not clearcut. There can be sub-groups that reflect certain interests, groups can have a dynamic structure that should be

incorporated, groups can overlap or administrative boundaries can actually divide certain interest groups (which often is the case in watersheds).

*Studies geared to catalyzing collection action:*

Action research studies are participatory by definition. In real life social norms, power relations and human variation are a constraint to the participation of certain stakeholders. In order to broaden participation, the study team has to investigate and be aware of context specific constraints and devise strategies to counteract these. Another important task of action research is prioritizing local objectives, and finding ways to mediate between different interest groups. Conflict management is often required. In general action research focuses on processes. Finally it is important to identify the existing incentive structure for collective action, and devise strategies to create incentives.

*Studies that investigate the outcome, impact and effectiveness of collection action:*

First of all it is important to distinguish the processes from the outcomes of collective action. Secondly it is important to determine *whose* perception of the outcome the study needs to look at. To measure outcomes we need to compare it to a baseline, but often the baseline or counterfactual is not easy to identify: what would have happened under different circumstances or in absence of collective action? Comparison between alternatives is an essential part of the investigation, but in order to compare we need to identify causalities and as stated before these are not always clear and feedback effects have to be taken into account. Measure of the outcome should entail benefits as well as costs at different levels (given that CA at different levels is linked). As indicated in the study undertaken in Burkina Faso collective action can also have distributional effects. Another problem, if we look at effects of collective action on natural resource condition, is that often these can be detected only in the long run and degradation can be non linear (we can have abrupt changes if a threshold is passed).

*Studies that look at the importance of collective action relative to other factors*

It is generally recognized that markets are important vehicle for economic development, however especially in developing countries market failure occurs in a number of sectors. In these cases collective action issues can be very relevant because CA can be a means to overcome the absence of markets in specific sectors, as in the case of environmental externalities. The very nature of many natural resources (non-divisibility, high variability and uncertainties linked to certain natural resources) require collective action in order to provide assure effective management. Another important area is the interaction between demographic factors and collective action. Studies that evaluate and research government policies should look at collective action issues because these can affect the outcome of policies interventions. Research on technology dissemination and adoption should look at collective action and e.g. its ability to reduce costs of information and knowledge flows. The very study of institutions requires that researchers look at the interaction of collective action and institutional outcomes. Interaction between

collective action and factors mentioned above are not deterministic and investigations have to be site specific.

A second set of discussion suggested a number of **methodologies to study collective action** and investigated their strengths and weaknesses.

#### *Experimental methods*

One of the advantages of using experimental methods is that it is possible to isolate a collective action problem and investigate it eliminating “noise”. It is possible to introduce one variation and observe and measure changes in outcomes. For this reason it is a good way to test theories. However, because of the relative isolation, experimental settings are also artificial and outcomes can be distorted. This factor is especially relevant when studying collective action where institutional setting, power relations and social dynamics affect outcomes. Experimental games using local situations to “frame” the problem or game can eliminate some of these problems and can convey complex issues to a broad audience in a very simple way that is easy to understand. To frame an experiment effectively, local knowledge is required. These techniques are especially suited to study behavior of participants under varying circumstances, however they do not always allow us to understand motivation underlying the behavior. Experiments and ‘games’ are very engaging and it may be that they can be used to catalyze collective action. One ethical concern refers to the cash pay-off that are often used in these games.

#### *Action research*

These techniques are geared towards catalyzing as well as studying collective action. Central to action research is the process itself which includes a learning process for both researcher as well as the community involved. Action research uses a number of methods including participatory rural appraisal, stakeholder analysis, problem analysis, institutional analysis and conflict management. More standardized methods including quantitative analysis can be complementary to action research. Some of the strengths of these methods are that they are adaptive and suited to dynamic settings, the community feels that it owns the study process and outcomes can foster empowerment of the community, and work toward poverty alleviation. Cross-fertilization of knowledge is another important aspect, as AR can also reduce information transaction costs of the research. It is a very useful tool to test theories in real world setting. Some of weaknesses include the difficulty to do comparative studies, the fact that outcomes are often not the most ‘efficient’ but involve compromises among different interests of researchers and other stakeholders, and given that real world settings are extremely complex, research issues will be as well. There are number of risks the researcher should be aware of: the risk of using participation as an assimilation strategy, and the risk that power struggles between researchers and participants affects the processes, this risk that the process be manipulated by special interests.

### *Quantitative methods*

Data collection methods and analytical methods were itemized and strengths and weaknesses were investigated. In relation to data collection methods different types of surveys were mentioned. Market surveys are cheap, fast, easy to triangulate and can provide good information on incentives but are time and site-specific, are easily influenced by external conditions and miss non-monetary value. Household surveys have the strength to capture heterogeneity in the community, and are effective to identify individual benefits, but they are expensive, and there is the risk of missing heterogeneity within household and biases can occur due to respondents attitude toward the research and cultural issues. Community surveys are cheaper and faster than household surveys, can identify factors affecting whole community, but are also time sensitive so they limit comparability, outcomes can be dominated by particular interest, heterogeneities within the community might escape detection, and often it is difficult to define the 'community' to study. Institutional surveys (e.g. of collective action groups, chieftaincy, etc.) capture relevant scale/forms of collective action as well as intermediary contexts, and are a critical tool for collective action studies. Difficulties include complexity, bias toward formal organization, bias and subjectivity for some variables and in general it is difficult to dissociate structure, conduct, and performance indicators of institutions. Watershed surveys have the advantage to capture environmental externalities and are good for integrated regional planning and assessments, but defining boundaries is difficult. The importance and advantages of geo-reference surveys, remote sensing plus ground-truthing and biophysical surveys were also discussed. Analytical methods discussed included descriptive statistics, econometric, game theory, simulation, anova, bioeconomic modeling, content analysis, laboratory techniques, and GIS analysis.

### *Qualitative methods*

Given the difficulties in measuring many determinants of collective action qualitative methods should be used as complements to quantitative analysis. Examples include participatory techniques, historical analysis, focus and group discussions. The advantages of integrating these techniques are that they increase the flexibility of the analysis, they help adapt hypothesis and methods to fit specific social settings, and are very useful to interpret quantitative analysis in an iterative way. The main disadvantages includes the fact that this triangulation is time consuming and costly. The inclusion of participants' observations has the benefit to convey local knowledge and can be used as a shortcut for institutional analysis, but can also introduce bias and partial information, Historical and institutional analysis is important for the interpretation of quantitative data as well as to identify determinants of collective action, and causality directions. Open ended interviews convey more comprehensive information, but are not comparable across sites and are more difficult to analyze.

### *Glossary*

Because the study of collective action requires integration of disciplines, one of the working groups started to develop a glossary of terms pertaining to the collective action sphere that includes different disciplinary definitions. This tool will be developed further and is thought to help multidisciplinary communication on the study of collective action.

### *Mixed methods*

A second group had the task to identify complementary methods that can help control for weaknesses of individual approaches. First of all it is important to acknowledge that different methods serve different purposes and the choice of the appropriate methods depends on the research questions. In general qualitative analysis helps deepen the understanding of specific issues while quantitative analysis is appropriate for generalization of findings, and finally action research is a framework for learning and change. One of weaknesses of quantitative analysis that it is overly reductionist and tends to avoid complexity. Qualitative analysis on a subset of the sample can help before (in the design) as well as after the quantitative survey to interpret the data.

An effective iterative research process was suggested to start with a literature and data review, followed by the generation of theory hypothesis followed by qualitative analysis that helps define the quantitative model and survey. Action research can be used to test the theory in a specific site and to achieve impact on the ground. Finally there is the validation and interpretation work that can bring back to a refinement of the theory, to policy or to action research again.

### *Ethical issues*

Ethical issues in research concern confidentiality as well as disclosure and use of information. On the one hand researchers should try to maintain objectivity and should be able to assess the effects of the research process on participants or locality involved in the study. An understanding of local people's values and ethics is required before the study is undertaken to be sure not to violate local values. For example sometimes information gathered by the researcher can trigger conflict between communities, groups or within households. On the other hand community ethics might prevent the gathering of truthful data on specific aspects and the researcher should be aware of this possibility and be willing to acknowledge this. In studies that directly or indirectly deal with marginalized groups or poor segments of society ethics becomes especially important. Studies that use pay-offs (as experimental methods sometimes do) should be especially careful in formulating the research outline and should investigate the associated ethical implications. The researcher should be clear and explicit with the people involved in the study and disclose the purpose of the research, explain how the information will be used, share the information and provide feedback to the community about the findings. Often local people are very much interested in the research output, but for the researcher providing this feedback is a low priority. Finally the researcher should acknowledge any kind of possible bias, missing information, difficulties encountered in the research and disclose these.

In the light of the participants' contributions and to conclude and synthesize the discussion two basic questions were addressed again at the end of the workshop:

**WHY IS COLLECTIVE ACTION IMPORTANT?**

**WHY DO WE NEED TO STUDY COLLECTIVE ACTION?**

First of all collective action is important because it counteracts a number of conditions including market failures, deterioration of customary institutions, lack of empowerment of vulnerable groups that slow down and constraint development. Collective action is relevant for natural resource management, technology innovation, enterprise development, policy change and improvement of community outcomes (health, access to resources), and thus for alleviation of poverty. The focus of collective action research should be on policy processes and synergies between administrative and local structures, on empowerment of vulnerable groups, on development interventions crafted to local realities (technology adoption) and should not only focus on success stories but also investigate why failures arise. Important research questions include: what factors condition success and failure of collective action outcome? What incentive do people have to undertake collective action? What are the constraints to effective collective action? What is the role of collective action in technology dissemination and adoption, and in the development of income generating activities?

Future research should also look closely at differences between groups or communities that obtain better/worse outcomes (e.g. health, development, infrastructure). Especially questions of power relations and power balance are crucial to this understanding.

Research should be building on indigenous capacity because it enriches the understanding of local conditions. Finally policy impact has to be the final objective of any research, and action research in particular is the most suited to catalyze collective action for the empowerment of vulnerable groups and contribute to reduce the number of the rural poor.

List of papers presented:

Social Relations & Seed Transactions: Small-Scale Farmers' Access to Maize Landraces in the Central Valleys of Oaxaca: Preliminary Findings  
by Lone B. Badstue, Mauricio R. Bellon, Xóchitl Juárez, Irma Manuel Rosas, and Ana María Solano (CIMMYT)

Quantitative Analysis of Collective Action: Methodology and Challenges  
by Takeshi Sakurai (WARDA)

Collective Action for Grazing Land Management in Crop-Livestock Mixed Systems in the Highlands of Northern Ethiopia  
by Berhanu Gebremedhin, John Pender and Girmay Tesfay (ILRI/IFPRI)

Functions and forms of social capital in Colombian rural agro-enterprises: A comparison of qualitative and quantitative methods  
by Nancy Johnson, CIAT, Ruth Suarez, CEGA, and Mark Lundy, CIAT

Understanding, Measuring and Utilizing Social Capital: Clarifying Concepts and Presenting a Field Application from India  
by Anirudh Krishna (Duke University)

Assessing the Factors Underlying Differences in Group Performance: Methodological Issues and Empirical Findings from the Highlands of Central Kenya  
by Frank Place, Gatarwa Kariuki, Justine Wangila, Adolf Makauki, Jessica Ndubi and Patti Kristjanson (ILRI, KARI, ICRAF)

Methods of Studying Collective Action in Natural Resource Management: The Case of Community Forestry in Nepal  
by Dr Bharat K Pokharel (Ministry of Forests and Soil Conservation, Nepal), Hemant R Ojha and Krishna Paudel (ForestAction, Nepal)

In Pursuit of Comparable Concepts and Data about Collective Action  
by Amy Poteete and Elinor Ostrom (International Forestry Resources and Institutions (IFRI) Research Program, Workshop in Political Theory and Policy Analysis, Indiana University)

Methods of Consensus Building for Collective Action: Community Based Aquatic Habitat and Floodplain Fisheries Management in Bangladesh and the Mekong Delta  
by Parvin Sultana, Paul M. Thompson and Mahfuzuddin Ahmed (International Center for Living Aquatic Resources Management)

A Classroom Experiment about Common-Pool Resources and Local Environmental Control  
by James J. Murphy and Juan-Camilo Cardenas

Rethinking Local Commons Dilemmas: Lessons from Experimental Economics in the Field  
by Juan Camilo Cardenas.

Forthcoming. In Jonathan Isham, Thomas Kelly and Sunder Ramaswamy, eds. Social Capital, Economic Development and the Environment, Edward Elgar Publishing. 2002.

Collective action and NRM in North Burkina Faso: A methodological perspective.  
Presentation by Celine Dutilly.